Monroe Energy, LLC
4101 Post Road
Trainer, PA 19061
(610) 364-8000

January 25, 2018

FedEx: 7712 5901 8273

Mr. James Rebarchak
Air Quality Program
Commonwealth of Pennsylvania
Department of Environmental Protection
2 East Main Street
Norristown, PA 19401

Re: Monroe Energy, LLC – Trainer Refinery
40 CFR 60, Subpart J and Ja Semiannual Compliance Report
Reporting Period: July 1 – December 31, 2017
Title V Operating Permit No. 23-00003

Dear Mr. Rebarchak:

In accordance with 40 CFR 60, Subparts J and Ja, Monroe Energy, LLC's Trainer Refinery hereby submits this semi-annual compliance report for the reporting period of July 1, 2017 – December 31, 2017.

Should you have any questions or comments regarding this report, please contact me at (610) 364-8396.

Sincerely,

Stephen Brady
Air Compliance Lead

Attachment 1: Responsible Official Certification
Attachment 2: Facility Applicability
Attachment 3: Excess Emission and Monitoring System Performance Summary Report
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Attachment 5: CEMS Certification/ Audit Details
Attachment 6: Reportable Discharges per 60.108a(c)(6)
Attachment 7: Daily Drift Test Results for the FCCU SO2 Analyzer
Attachment 8: Detailed CEMS Downtime

cc: Office of Air Enforcement & Compliance Assistance (3AP20)
U.S. EPA, Region III
1650 Arch Street
Philadelphia, Pa 19103-2029
Fedex: 7712 5920 9572

Monroe Energy, LLC
4101 Post Road
Trainer, PA 19061
(610) 364-8000

Attachment 1: Responsible Official Certification

Responsible Official Certification

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify the information contained in this report is accurate and true to the best of my knowledge.

Jeffrey K. Warmann,
CEO & President

1/25/2018
Date

Attachment 2: Facility Applicability

NSPS Subpart J

Fluid Catalytic Cracking Unit (FCCU)

The FCCU (Source ID 101) is subject to NSPS Subpart J. The FCC control devices include a CO Boiler, an Enhanced Selective Non-Catalytic Reduction Unit (ENSCR), an electrostatic precipitator, and a wet gas scrubber (WGS). In accordance with Subpart J, the WGS is equipped with a CEMS to measure CO and SO_2.

On November 22, 2005, the facility received approval from U.S. EPA for an Alternative Monitoring Plan (AMP) for Opacity in lieu of the requirement to install and operate a Continuous Opacity Monitoring (COM) System on the FCCU WGS stack. The AMP requires the refinery to monitor WGS liquid-to-gas (L-to-G) ratio (must be above 0.08) to continuously demonstrate compliance with the limits established during performance testing conducted in 2006 and 2007.

- **CMS Data:**

See Attachment 2 for a summary of the CMS downtime and excess emissions data in accordance with 40 CFR 60.7 (c)-(d) for this reporting period. As required by 40 CFR 104(c)(4)(vi), the results of the daily drift tests are included in Attachment 7 for the SO_2 analyzer.

- **Excess Emissions Reporting:**

Refer to Attachment 4 for details. There was one hour of excess emissions/limit exceedances for CO and there were no SO_2 excess emissions/limit exceedances from the FCCU. The L-to-G ratio remained above the minimum ratio of 0.08 established during the 2007 performance test for the entire reporting period.

NSPS Subpart Ja

Main Flare

Monroe Energy operates a Main Flare (Source ID 103) that became subject to NSPS Ja on November 11, 2015. This flare is equipped with a flare gas recovery unit (FGRU) and maintains continuous monitoring equipment (i.e. flow, total reduced sulfur (TRS), H_2S) in accordance with the regulation.

- **CMS Data:**

See Attachment 2 for a summary of the H_2S and TRS CMS downtime and excess emissions data in accordance with 40 CFR 60.7 (c)-(d) for this reporting period. There were no exceedances of the 162 ppm H_2S on a 3-Hr average limit.

- **Reportable Discharges per 60.108a(c)(6):**

There were three reportable discharges to the flare, which exceeded 500,000 scf above the prescribed baseline flow to the flare. Therefore the required Root Cause Analysis summaries are included in Attachment 6.

Sulfur Recovery Unit (SRU)

Monroe Energy operates two Claus sulfur recovery units. These units are permitted together as Source 102 (Claus Sulfur Recovery Plant) in the facility's Title V Permit. The SRU became subject to NSPS Ja on November 11, 2015 when the vent from the Sour Water Storage Tank was routed from the Sour Gas flare (which was subsequently shut down) to the SRU incinerator. The SRU is equipped with a CEMS to

measure SO_2 and O_2. Pursuant to the PADEP certified CEMS, there were forty-two hours in which deviations from the 12-hr SO_2 corrected ppm limit occurred during the reporting period.

- **CMS Data:**

See Attachment 2 for a summary of the CMS downtime and excess emissions data in accordance with 40 CFR 60.7 (c)-(d) for this reporting period.

- **Reportable Discharges per 60.108a(c)(6):**

There was one reportable discharge that occurred during this reporting period. Therefore, the required Root Cause Analysis summary is included in Attachment 6.

Fuel Gas System

Monroe Energy operates two fuel gas systems subject to NSPS Ja. The fuel gas systems include the North Side Fuel Gas System and the South Side Fuel Gas System. In accordance with Subpart Ja, each fuel gas system is equipped with a CMS system for measuring the concentration of H_2S in the fuel gas before being burned in any combustion device. There were no deviations from any limits during the reporting period.

- **CMS Data:**

See Attachment 2 for a summary of the CMS downtime and excess emissions data in accordance with 40 CFR 60.7 (c)-(d) for this reporting period.

- **Reportable Discharges per 60.108a(c)(6):**

There were no reportable discharges for either of the fuel gas systems during this reporting period.

CMS Certification/Audit Details for all applicable sources can be found in Attachment 4. The refinery conducted Relative Accuracy Test Audits (RATAs) CEMS in April 2017. All data collected indicates that the CEMS passed their RATAs. The final RATA results were included in the 2017 first half semiannual report and are not included in this report.

Attachment 3: Excess Emission and Monitoring System Performance Summary Report

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO_2 NO_X TRS H_2S (CO) Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **500 ppm (1-hour average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **Servomex**

Model No.: **04900C1-4202**

Date of Latest CMS Certification or Audit: **12/12/2017 (Linearity Test)**

Process Unit(s) Description: **FCCU**

Total source operating time in reporting period [1]: **4405.18 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
c. Process problems	0	c. Quality assurance calibration	0
d. Other known causes	0	d. Other known causes	0
e. Unknown causes	0	e. Unknown causes	1
2. Total duration of excess emissions	1	2. Total CMS Downtime	1
3. Total duration of excess emissions x (100) / [Total source operating time]	0.02 %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	.023 %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted. **See Attachment 3 for excess emissions information.**

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): (SO2) NOx TRS H2S CO Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **50 ppm (7-day rolling average); 25 ppm (365-day rolling average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **AMETEK**

Model No.: **921**

Date of Latest CMS Certification or Audit: **12/11/2017 (Linearity Test)**

Process Unit(s) Description: **FCCU**

Total source operating time in reporting period [1]: **4405.18 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	**0**	a. Monitor equipment malfunctions	**0**
b. Control equipment problems	**0**	b. Non-Monitor equipment malfunctions	**0**
c. Process problems	**0**	c. Quality assurance calibration	**0**
d. Other known causes	**0**	d. Other known causes	**0**
e. Unknown causes	**0**	e. Unknown causes	**97**
2. Total duration of excess emissions	**0**	2. Total CMS Downtime	**97**
3. Total duration of excess emissions x (100) / [Total source operating time]	**0.0** %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	**2.20** %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted. **See Attachment 3 for excess emissions information.**

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): (SO_2) NO_x TRS H_2S CO Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **250 ppm (12 hour rolling average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **AMETEK**

Model No.: **Model 921**

Date of Latest CMS Certification or Audit: **12/05/2017 (Linearity Test)**

Process Unit(s) Description: **Claus Sulfur Recovery Plant**

Total source operating time in reporting period [1]: **4377.02 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
a. Startup/shutdown	0	a. Monitor equipment malfunctions	0
b. Control equipment problems	0	b. Non-Monitor equipment malfunctions	7
c. Process problems	30*	c. Quality assurance calibration	1
d. Other known causes	0	d. Other known causes	10
e. Unknown causes	0	e. Unknown causes	60
2. Total duration of excess emissions	30	2. Total CMS Downtime	78
3. Total duration of excess emissions x (100) / [Total source operating time]	0.69 %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	1.78 %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted. **See Attachment 3 for excess emissions information.**

* There is a process analyzer on the SRU stack, which is not a CEMS, but is used for other process control purposes. This analyzer suggests that there were a total of 42 hours of excess emissions. However, we are reporting the actual CEMS based excess emissions for consistency with the regulation.

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO_2 NO_X (TRS) H_2S CO Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **162 ppm (3 hour average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **Thermo**

Model No.: **SOLA II**

Date of Latest CMS Certification or Audit: **12/06/2017 (Linearity Test)**

Process Unit(s) Description: **Main Flare**

Total source operating time in reporting period [1]: **4416 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
f. Startup/shutdown	0	a. Monitor equipment malfunctions	0
g. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
h. Process problems	0	c. Quality assurance calibration	0
i. Other known causes	0	d. Other known causes	0
j. Unknown causes	0	e. Unknown causes	10
2. Total duration of excess emissions	0	2. Total CMS Downtime	10
3. Total duration of excess emissions x (100) / [Total source operating time]	**0.0** %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	**0.23** %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted. **See Attachment 3 for excess emissions information.**

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO_2 NO_X TRS (**H_2S**) CO Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **162 ppm H2S (3 hour Average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **Applied Automation**

Model No.: **AV4070**

Date of Latest CMS Certification or Audit: **12/20/2017 (Linearity Test)**

Process Unit(s) Description: **North Side Fuel Gas System**

Total source operating time in reporting period [1]: **4416 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
f. Startup/shutdown	0	a. Monitor equipment malfunctions	0
g. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
h. Process problems	0	c. Quality assurance calibration	4
i. Other known causes	0	d. Other known causes	0
j. Unknown causes	0	e. Unknown causes	26
2. Total duration of excess emissions	0	2. Total CMS Downtime	30
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	0.29 %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO_2 NO_x TRS (H_2S) CO Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **162 ppm H2S (3 hour Average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **Applied Automation**

Model No.: **AV4071**

Date of Latest CMS Certification or Audit: **12/05/2017 (Linearity Test)**

Process Unit(s) Description: **South Side Fuel Gas System**

Total source operating time in reporting period [1]: **4416 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
k. Startup/shutdown	0	a. Monitor equipment malfunctions	0
l. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
m. Process problems	0	c. Quality assurance calibration	4
n. Other known causes	0	d. Other known causes	0
o. Unknown causes	0	e. Unknown causes	9
2. Total duration of excess emissions	0	2. Total CMS Downtime	13
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	0.29 %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE SUMMARY REPORT

Pollutant (Circle One): SO_2 NO_X TRS (**H_2S**) CO Opacity

Reporting period dates: From **July 1, 2017** to **December 31, 2017**

Company: **Monroe Energy, LLC**

Emission Limitation: **162 ppm (3 hour average)**

Address: **4101 Post Rd, Trainer PA 19061**

Monitor Manufacturer: **ABB**

Model No.: **PGC5000**

Date of Latest CMS Certification or Audit: **12/05/2017 (Linearity Test)**

Process Unit(s) Description: **Main Flare**

Total source operating time in reporting period [1]: **4416 hours**

Emission data summary [1]		CMS performance summary [1]	
1. Duration of excess emissions in the reporting period due to:		1. CMS downtime in the reporting period due to:	
k. Startup/shutdown	0	a. Monitor equipment malfunctions	0
l. Control equipment problems	0	b. Non-Monitor equipment malfunctions	0
m. Process problems	0	c. Quality assurance calibration	0
n. Other known causes	0	d. Other known causes	0
o. Unknown causes	0	e. Unknown causes	13
2. Total duration of excess emissions	0	2. Total CMS Downtime	13
3. Total duration of excess emissions x (100) / [Total source operating time]	0.0 %[2]	3. [Total CMS Downtime] x (100) / [Total source operating time]	0.29 %[2]

[1] For opacity, record all times in minutes. For gases, record all times in hours.

[2] For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted. **See Appendix B for excess emissions information.**

Note: On a separate page, describe any changes since last quarter in CMS, process or controls. **No changes to the CMS, process, or controls have occurred since last reporting period.**

Attachment 4: Excess Emissions and Emission Limit Exceedances

If any deviations occur from standards that use CEMS for compliance, refer to Attachment 7 to view detailed CEMS downtime information.

Source: FCCU
Standard: 500 PPM CO 1-Hr Average Limit

Start	Duration	Caused by SSM event?	Nature and Cause of Event?	Corrective Action Taken?
12/20/17 16:00	1 hour	Yes	FCC unit was manually placed into temporary shutdown because of unstable conditions. The shutdown caused CO to spike and resulted in the exceedance of the limit.	At the time of this report, the incident is still under investigation.

Source: FCCU
Standard: L:G Ratio ≥ 0.08 (Per November, 2005) – Demonstrates Compliance for PM and Opacity Standards

There were no deviations from this standard during the reporting period.

Source: FCCU
Standard: 50 ppm SO_2 (7-day rolling average); 25 ppm SO_2 (365-day rolling average)

There were no deviations from this standard during the reporting period.

Source: SRU
Standard: 250 PPM SO_2 12-Hr Rolling Average Limit

Start	Duration	*Emissions Over the Limit (lbs)	Caused by SSM event?	Nature and Cause of Event?	Corrective Action Taken?
07/24/17 0:00	30 hours	202.1	Yes	The SCOT heater unit tripped offline, and despite numerous attempts to restart, did not relight because of an ignitor malfunction. Train number two of the Claus Sulfur Recovery Unit was diverted directly to the incinerator so that repairs could be completed to the ignitor. Had train number two not have been diverted; the potential for more serious process upsets with more significant environmental consequences would have existed.	1. Immediately upon identifying signs that the air-to-fuel ratio within SCOT heater was dropping, console operators attempted to recover SCOT heater operations by increasing airflow before the unit tripped. 2. Concurrently, console operators called in the process control team to reset the SCOT heater control system in attempt to restart the heater. 3. Train number two of the Claus Sulfur Recover Unit was diverted directly to the incinerator to prevent SO_2 breakthrough to the Quench Tower from cooling reactor bed temperatures. 4. After suspecting that the cause of the ignitor failure to light the SCOT heater was an electrical issue, I/E was called-in an on emergency Work Order TW54817 while off-shift to repair ignitor. A crack in the ignitor was identified. A new ignitor was fabricated and installed during hour 13:00 on 7/24/17.

***It was conservatively assumed that any hourly SO2 average that exceeded the 250 ppm limit during the incident would be included in the emissions over the limit estimate. Engineering calculations are used to determine the mass flowrate of emissions out the stack. Also, as previously mentioned the process analyzer suggested that the excess emissions might be slightly higher than the estimate obtained from the SO2 CEMS. The excess emissions are estimated to be 2000 lbs using the process analyzer for time periods when the CEMS yielded invalid data.**

Source: Main Flare
Standard: 162 ppm H_2S 3-Hr Rolling Average Limit

There were no deviations from this standard during the reporting period.

Attachment 5: CEMS Certification/Audit Details

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: FCCSTACK
Parameter: SO2
System ID:
Component ID:
Span Value: 100.000
Span Scale Code: H

Test End Date/Time: 09/11/17 10:47
Test Number: XML (29-Q3-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
09/11/17 10:17	83.400	84.500	-1.100	1.3
09/11/17 10:31	83.400	83.700	-0.300	0.4
09/11/17 10:47	83.400	85.500	-2.100	2.5

Reference Mean: 83.400
Measured Mean: 84.567
Level Error: 1.4
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: CC267545
Cylinder Exp. Date: 04/03/2025

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
09/11/17 10:14	50.000	49.100	0.900	1.8
09/11/17 10:28	50.000	49.500	0.500	1.0
09/11/17 10:44	50.000	50.600	-0.600	1.2

Reference Mean: 50.000
Measured Mean: 49.733
Level Error: 0.5
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: cc30589
Cylinder Exp. Date: 10/12/2017

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
09/11/17 10:09	0.000	0.700	-0.700	
09/11/17 10:24	0.000	1.400	-1.400	
09/11/17 10:38	0.000	0.900	-0.900	

Reference Mean: 0.000
Measured Mean: 1.000
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: FCCSTACK
Parameter: O2
System ID:
Component ID:
Span Value: 25.000
Span Scale Code: H

Test End Date/Time: 09/11/17 12:47
Test Number: XML (27-Q3-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
09/11/17 12:01	0.000	0.000	0.000	
09/11/17 12:17	0.000	0.000	0.000	
09/11/17 12:37	0.000	0.000	0.000	

Reference Mean: 0.000
Measured Mean: 0.000
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
09/11/17 12:11	21.900	22.000	-0.100	0.5
09/11/17 12:29	21.900	22.000	-0.100	0.5
09/11/17 12:47	21.900	22.000	-0.100	0.5

Reference Mean: 21.900
Measured Mean: 22.000
Level Error: 0.5
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: ALM006916
Cylinder Exp. Date: 05/23/2025

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
09/11/17 12:08	13.100	13.000	0.100	0.8
09/11/17 12:22	13.100	13.000	0.100	0.8
09/11/17 12:42	13.100	13.000	0.100	0.8

Reference Mean: 13.100
Measured Mean: 13.000
Level Error: 0.8
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: A12011
Cylinder #: almo51526
Cylinder Exp. Date: 01/02/2021

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: FCCSTACK
Parameter: CO
System ID:
Component ID:
Span Value: 1,000.000
Span Scale Code: H

Test End Date/Time: 09/11/17 13:44
Test Number: XML (33-Q3-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
09/11/17 12:56	0.000	0.200	-0.200	
09/11/17 13:15	0.000	1.000	-1.000	
09/11/17 13:34	0.000	0.900	-0.900	

Reference Mean: 0.000
Measured Mean: 0.700
Level Error:
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: F12011
Cylinder #: ALM002141
Cylinder Exp. Date: 08/20/2015

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
09/11/17 12:59	516.000	538.400	-22.400	4.3
09/11/17 13:20	516.000	538.100	-22.100	4.3
09/11/17 13:38	516.000	534.800	-18.800	3.6

Reference Mean: 516.000
Measured Mean: 537.100
Level Error: 4.1
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: ALM022673
Cylinder Exp. Date: 10/29/2023

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
09/11/17 13:04	915.000	948.700	-33.700	3.7
09/11/17 13:25	915.000	944.000	-29.000	3.2
09/11/17 13:44	915.000	940.200	-25.200	2.8

Reference Mean: 915.000
Measured Mean: 944.300
Level Error: 3.2
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: CC153888
Cylinder Exp. Date: 06/09/2025

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: FCCSTACK
Parameter: SO2
System ID:
Component ID:
Span Value: 100.000
Span Scale Code: H

Test End Date/Time: 12/11/17 11:04
Test Number: XML (29-Q4-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
12/11/17 10:32	0.000	0.100	-0.100	
12/11/17 10:44	0.000	1.400	-1.400	
12/11/17 10:56	0.000	1.700	-1.700	

Reference Mean: 0.000
Measured Mean: 1.067
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
12/11/17 10:38	88.700	89.200	-0.500	0.6
12/11/17 10:50	88.700	89.700	-1.000	1.1
12/11/17 11:04	88.700	89.500	-0.800	0.9

Reference Mean: 88.700
Measured Mean: 89.467
Level Error: 0.9
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: alm019293
Cylinder Exp. Date: 09/17/2024

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
12/11/17 10:36	50.000	47.500	2.500	5.0
12/11/17 10:48	50.000	50.000	0.000	0.0
12/11/17 11:01	50.000	50.300	-0.300	0.6

Reference Mean: 50.000
Measured Mean: 49.267
Level Error: 1.5
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: alm022262
Cylinder Exp. Date: 08/10/2021

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: FCCSTACK
Parameter: O2
System ID:
Component ID:
Span Value: 25.000
Span Scale Code: H

Test End Date/Time: 12/12/17 13:11
Test Number: XML (27-Q4-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
12/12/17 12:47	13.100	12.800	0.300	2.3
12/12/17 12:57	13.100	13.000	0.100	0.8
12/12/17 13:07	13.100	13.000	0.100	0.8

Reference Mean: 13.100
Measured Mean: 12.933
Level Error: 1.3
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: A12011
Cylinder #: almo51526
Cylinder Exp. Date: 01/02/2021

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
12/12/17 12:50	21.900	21.700	0.200	0.9
12/12/17 13:00	21.900	21.700	0.200	0.9
12/12/17 13:11	21.900	21.700	0.200	0.9

Reference Mean: 21.900
Measured Mean: 21.700
Level Error: 0.9
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: A12011
Cylinder #: cc275450
Cylinder Exp. Date: 05/23/2025

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
12/12/17 12:44	0.000	0.100	-0.100	
12/12/17 12:54	0.000	0.200	-0.200	
12/12/17 13:04	0.000	0.100	-0.100	

Reference Mean: 0.000
Measured Mean: 0.133
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: M_FLARE
Parameter: H2S
Instrument Span: 300.000

Test Date/Time: 09/19/17 11:13
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
09/19/17 09:44	264.000	263.000	1.000	0.4
09/19/17 10:31	263.000	263.000	0.000	0.0
09/19/17 11:13	263.100	263.000	0.100	0.0

CEMS Mean (Cm): 263.367
Audit Mean (Ca): 263.000
Accuracy (A) in %: 0.1
Mean Difference: 0.4
APS Indicator: 0
Cylinder #: ALM011062
Cylinder Exp. Date: 10/12/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
09/19/17 09:37	153.000	153.000	0.000	0.0
09/19/17 10:19	153.200	153.000	0.200	0.1
09/19/17 11:03	153.200	153.000	0.200	0.1

CEMS Mean (Cm): 153.133
Audit Mean (Ca): 153.000
Accuracy (A) in %: 0.1
Mean Difference: 0.1
APS Indicator: 0
Cylinder #: ALMO27491
Cylinder Exp. Date: 10/14/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
09/19/17 09:26	1.000	0.000	1.000	#Error
09/19/17 10:11	1.000	0.000	1.000	#Error
09/19/17 10:54	1.000	0.000	1.000	#Error

CEMS Mean (Cm): 1.000
Audit Mean (Ca): 0.000
Accuracy (A) in %: #Error
Mean Difference: 1.0
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: M_FLARE
Parameter: H2S
Instrument Span: 300.000

Test Date/Time: 12/05/17 13:08
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
12/05/17 11:19	153.400	153.000	0.400	0.3
12/05/17 12:06	155.000	153.000	2.000	1.3
12/05/17 12:56	149.400	153.000	-3.600	-2.4

CEMS Mean (Cm): 152.600
Audit Mean (Ca): 153.000
Accuracy (A) in %: -0.3
Mean Difference: -0.4
APS Indicator: 0
Cylinder #: ALMO27491
Cylinder Exp. Date: 10/14/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
12/05/17 11:31	280.400	263.000	17.400	6.6
12/05/17 12:18	274.200	263.000	11.200	4.3
12/05/17 13:08	267.600	263.000	4.600	1.7

CEMS Mean (Cm): 274.067
Audit Mean (Ca): 263.000
Accuracy (A) in %: 4.2
Mean Difference: 11.1
APS Indicator: 0
Cylinder #: ALM032309
Cylinder Exp. Date: 10/12/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
12/05/17 11:07	1.000	0.000	1.000	#Error
12/05/17 11:54	1.700	0.000	1.700	#Error
12/05/17 12:44	1.300	0.000	1.300	#Error

CEMS Mean (Cm): 1.333
Audit Mean (Ca): 0.000
Accuracy (A) in %: #Error
Mean Difference: 1.3
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: M_FLARE
Parameter: SOLA_TRS
Instrument Span: 5000.000

Test Date/Time: 09/13/17 12:07
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
09/13/17 10:32	75.200	75.000	0.200	0.3
09/13/17 11:12	75.600	75.000	0.600	0.8
09/13/17 11:45	74.600	75.000	-0.400	-0.5

CEMS Mean (Cm): 75.133
Audit Mean (Ca): 75.000
Accuracy (A) in %: 0.2
Mean Difference: 0.1
APS Indicator: 0
Cylinder #: aal20416
Cylinder Exp. Date: 04/08/2023

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
09/13/17 10:37	159.400	153.000	6.400	4.2
09/13/17 11:15	156.600	153.000	3.600	2.4
09/13/17 11:52	159.600	153.000	6.600	4.3

CEMS Mean (Cm): 158.533
Audit Mean (Ca): 153.000
Accuracy (A) in %: 3.6
Mean Difference: 5.5
APS Indicator: 0
Cylinder #: alm000662
Cylinder Exp. Date: 11/18/2020

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
09/13/17 10:51	2,404.100	2,554.000	-149.900	-5.9
09/13/17 11:30	2,404.200	2,554.000	-149.800	-5.9
09/13/17 12:07	2,404.800	2,554.000	-149.200	-5.8

CEMS Mean (Cm): 2404.367
Audit Mean (Ca): 2554.000
Accuracy (A) in %: -5.9
Mean Difference: -149.6
APS Indicator: 0
Cylinder #: alm036479
Cylinder Exp. Date: 01/04/2021

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: M_FLARE
Parameter: SOLA_TRS
Instrument Span: 5000.000

Test Date/Time: 12/06/17 12:54
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
12/06/17 11:21	77.400	77.000	0.400	0.5
12/06/17 11:57	78.900	77.000	1.900	2.5
12/06/17 12:34	78.600	77.000	1.600	2.1

CEMS Mean (Cm): 78.300
Audit Mean (Ca): 77.000
Accuracy (A) in %: 1.7
Mean Difference: 1.3
APS Indicator: 0
Cylinder #: CC205990
Cylinder Exp. Date: 02/21/2020

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
12/06/17 11:29	136.300	153.000	-16.700	-10.9
12/06/17 12:05	136.200	153.000	-16.800	-11.0
12/06/17 12:42	135.800	153.000	-17.200	-11.2

CEMS Mean (Cm): 136.100
Audit Mean (Ca): 153.000
Accuracy (A) in %: -11.0
Mean Difference: -16.9
APS Indicator: 0
Cylinder #: ALMO27491
Cylinder Exp. Date: 10/14/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
12/06/17 11:41	2,397.700	2,554.000	-156.300	-6.1
12/06/17 12:17	2,397.800	2,554.000	-156.200	-6.1
12/06/17 12:54	2,393.700	2,554.000	-160.300	-6.3

CEMS Mean (Cm): 2396.400
Audit Mean (Ca): 2554.000
Accuracy (A) in %: -6.2
Mean Difference: -157.6
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: N_H2S
Parameter: N_H2S
Instrument Span: 300.000

Test Date/Time: 09/21/17 12:48
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
09/21/17 12:06	155.200	155.000	0.200	0.1
09/21/17 12:24	158.400	155.000	3.400	2.2
09/21/17 12:44	160.200	155.000	5.200	3.4

CEMS Mean (Cm): 157.933
Audit Mean (Ca): 155.000
Accuracy (A) in %: 1.9
Mean Difference: 2.9
APS Indicator: 0
Cylinder #: ALM021059
Cylinder Exp. Date: 01/30/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
09/21/17 12:02	260.700	263.000	-2.300	-0.9
09/21/17 12:20	262.000	263.000	-1.000	-0.4
09/21/17 12:36	263.200	263.000	0.200	0.1

CEMS Mean (Cm): 261.967
Audit Mean (Ca): 263.000
Accuracy (A) in %: -0.4
Mean Difference: -1.0
APS Indicator: 0
Cylinder #: ALM029022
Cylinder Exp. Date: 10/12/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
09/21/17 12:14	4.100	0.000	4.100	#Error
09/21/17 12:32	0.000	0.000	0.000	#Error
09/21/17 12:48	0.000	0.000	0.000	#Error

CEMS Mean (Cm): 1.367
Audit Mean (Ca): 0.000
Accuracy (A) in %: #Error
Mean Difference: 1.4
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: N_H2S
Parameter: N_H2S
Instrument Span: 300.000

Test Date/Time: 12/20/17 14:17
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
12/20/17 13:32	161.200	155.000	6.200	4.0
12/20/17 13:50	161.600	155.000	6.600	4.3
12/20/17 14:10	159.200	155.000	4.200	2.7

CEMS Mean (Cm): 160.667
Audit Mean (Ca): 155.000
Accuracy (A) in %: 3.7
Mean Difference: 5.7
APS Indicator: 0
Cylinder #: ALM021059
Cylinder Exp. Date: 01/30/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
12/20/17 13:24	265.900	263.000	2.900	1.1
12/20/17 13:43	262.600	263.000	-0.400	-0.2
12/20/17 14:04	268.300	263.000	5.300	2.0

CEMS Mean (Cm): 265.600
Audit Mean (Ca): 263.000
Accuracy (A) in %: 1.0
Mean Difference: 2.6
APS Indicator: 0
Cylinder #: ALM029022
Cylinder Exp. Date: 10/12/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
12/20/17 13:36	3.300	0.000	3.300	#Error
12/20/17 13:55	0.000	0.000	0.000	#Error
12/20/17 14:17	0.900	0.000	0.900	#Error

CEMS Mean (Cm): 1.400
Audit Mean (Ca): 0.000
Accuracy (A) in %: #Error
Mean Difference: 1.4
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: SRUSTACK
Parameter: O2
System ID:
Component ID:
Span Value: 25.000
Span Scale Code: H

Test End Date/Time: 09/18/17 10:01
Test Number: XML (18-Q3-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
09/18/17 09:19	13.100	13.000	0.100	0.8
09/18/17 09:38	13.100	13.000	0.100	0.8
09/18/17 09:56	13.100	13.000	0.100	0.8

Reference Mean: 13.100
Measured Mean: 13.000
Level Error: 0.8
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: A12011
Cylinder #: ALM062568
Cylinder Exp. Date: 01/02/2021

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
09/18/17 09:25	21.900	21.800	0.100	0.5
09/18/17 09:43	21.900	21.800	0.100	0.5
09/18/17 10:01	21.900	21.800	0.100	0.5

Reference Mean: 21.900
Measured Mean: 21.800
Level Error: 0.5
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: A12011
Cylinder #: ALM004016
Cylinder Exp. Date: 04/08/2023

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
09/18/17 09:14	0.000	0.000	0.000	
09/18/17 09:31	0.000	0.000	0.000	
09/18/17 09:48	0.000	0.000	0.000	

Reference Mean: 0.000
Measured Mean: 0.000
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: SRUSTACK
Parameter: SO2
System ID:
Component ID:
Span Value: 500.000
Span Scale Code: H

Test End Date/Time: 09/19/17 08:59
Test Number: XML (17-Q3-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
09/19/17 07:52	0.000	0.000	0.000	
09/19/17 08:20	0.000	3.200	-3.200	
09/19/17 08:47	0.000	1.800	-1.800	

Reference Mean: 0.000
Measured Mean: 1.667
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
09/19/17 08:01	272.200	272.700	-0.500	0.2
09/19/17 08:26	272.200	274.100	-1.900	0.7
09/19/17 08:52	272.200	276.400	-4.200	1.5

Reference Mean: 272.200
Measured Mean: 274.400
Level Error: 0.8
APS Indicator: False
Gas Type Code: BALN,SO2
Vendor Identifier:
Cylinder #: CC172928
Cylinder Exp. Date: 09/20/2024

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
09/19/17 08:07	489.000	497.100	-8.100	1.7
09/19/17 08:33	489.000	497.100	-8.100	1.7
09/19/17 08:59	489.000	497.100	-8.100	1.7

Reference Mean: 489.000
Measured Mean: 497.100
Level Error: 1.7
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #: ALM017305
Cylinder Exp. Date: 10/18/2020

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: SRUSTACK
Parameter: O2
System ID:
Component ID:
Span Value: 25.000
Span Scale Code: H

Test End Date/Time: 12/05/17 09:47
Test Number: XML (18-Q4-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
12/05/17 09:09	21.700	21.700	0.000	0.0
12/05/17 09:27	21.700	21.700	0.000	0.0
12/05/17 09:47	21.700	21.700	0.000	0.0

Reference Mean: 21.700
Measured Mean: 21.700
Level Error: 0.0
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier:
Cylinder #: EB0092642
Cylinder Exp. Date: 07/17/2025

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
12/05/17 09:04	13.100	13.000	0.100	0.8
12/05/17 09:23	13.100	13.000	0.100	0.8
12/05/17 09:40	13.100	13.000	0.100	0.8

Reference Mean: 13.100
Measured Mean: 13.000
Level Error: 0.8
APS Indicator: False
Gas Type Code: BALN,O2
Vendor Identifier: A12011
Cylinder #: ALM062568
Cylinder Exp. Date: 01/02/2021

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
12/05/17 08:55	0.000	0.000	0.000	
12/05/17 09:14	0.000	0.000	0.000	
12/05/17 09:33	0.000	0.000	0.000	

Reference Mean: 0.000
Measured Mean: 0.000
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Linearity Test

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 01/12/2018 23:59

Source: SRUSTACK
Parameter: SO2
System ID:
Component ID:
Span Value: 500.000
Span Scale Code: H

Test End Date/Time: 12/05/17 11:50
Test Number: XML (17-Q4-2017-1) / EDR (1)
Reason for Test: Periodic Quality Assurance
Test Result: **Pass**
Abbreviated?: No

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Low-Level				
12/05/17 10:48	0.000	0.000	0.000	
12/05/17 11:15	0.000	0.100	-0.100	
12/05/17 11:38	0.000	0.100	-0.100	

Reference Mean: 0.000
Measured Mean: 0.067
Level Error:
APS Indicator: False
Gas Type Code:
Vendor Identifier:
Cylinder #:
Cylinder Exp. Date:

Injection Time	Reference Value	Measured Value	Difference	% of Reference
Mid-Level				
12/05/17 10:53	276.400	276.500	-0.100	0.0
12/05/17 11:19	276.400	278.000	-1.600	0.6
12/05/17 11:45	276.400	280.800	-4.400	1.6

Reference Mean: 276.400
Measured Mean: 278.433
Level Error: 0.7
APS Indicator: False
Gas Type Code: BALN,SO2
Vendor Identifier:
Cylinder #: ALM017795
Cylinder Exp. Date: 10/29/2023

Injection Time	Reference Value	Measured Value	Difference	% of Reference
High-Level				
12/05/17 11:00	450.700	449.100	1.600	0.4
12/05/17 11:25	450.700	453.400	-2.700	0.6
12/05/17 11:50	450.700	459.100	-8.400	1.9

Reference Mean: 450.700
Measured Mean: 453.867
Level Error: 0.7
APS Indicator: False
Gas Type Code: BALN,SO2
Vendor Identifier:
Cylinder #: CC107667
Cylinder Exp. Date: 05/30/2025

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: S_H2S
Parameter: S_H2S
Instrument Span: 300.000

Test Date/Time: 09/25/17 09:41
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
09/25/17 08:55	151.100	153.000	-1.900	-1.2
09/25/17 09:15	150.200	153.000	-2.800	-1.8
09/25/17 09:32	151.400	153.000	-1.600	-1.0

CEMS Mean (Cm): 150.900
Audit Mean (Ca): 153.000
Accuracy (A) in %: -1.4
Mean Difference: -2.1
APS Indicator: 0
Cylinder #: cc169102
Cylinder Exp. Date: 10/14/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
09/25/17 08:51	266.800	262.100	4.700	1.8
09/25/17 09:08	265.100	262.100	3.000	1.1
09/25/17 09:27	265.100	262.100	3.000	1.1

CEMS Mean (Cm): 265.667
Audit Mean (Ca): 262.100
Accuracy (A) in %: 1.4
Mean Difference: 3.6
APS Indicator: 0
Cylinder #: CC85433
Cylinder Exp. Date: 03/07/2020

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
09/25/17 09:02	0.000	0.000	0.000	#Error
09/25/17 09:20	0.000	0.000	0.000	#Error
09/25/17 09:41	0.000	0.000	0.000	#Error

CEMS Mean (Cm): 0.000
Audit Mean (Ca): 0.000
Accuracy (A) in %: #Error
Mean Difference: 0.0
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Cylinder Gas Audit

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: S_H2S
Parameter: S_H2S
Instrument Span: 300.000

Test Date/Time: 12/05/17 10:52
Test Result: **Pass**
Aborted?: No

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Mid-Level				
12/05/17 10:11	150.100	153.000	-2.900	-1.9
12/05/17 10:28	152.000	153.000	-1.000	-0.7
12/05/17 10:47	155.400	153.000	2.400	1.6

CEMS Mean (Cm): 152.500
Audit Mean (Ca): 153.000
Accuracy (A) in %: -0.3
Mean Difference: -0.5
APS Indicator: 0
Cylinder #: cc169102
Cylinder Exp. Date: 10/14/2019

Time	CEMS Value	Audit Value	Difference	% of Audit Value
High-Level				
12/05/17 10:04	261.100	261.900	-0.800	-0.3
12/05/17 10:23	261.700	261.900	-0.200	-0.1
12/05/17 10:40	263.200	261.900	1.300	0.5

CEMS Mean (Cm): 262.000
Audit Mean (Ca): 261.900
Accuracy (A) in %: 0.0
Mean Difference: 0.1
APS Indicator: 0
Cylinder #: CC213602
Cylinder Exp. Date: 03/11/2020

Time	CEMS Value	Audit Value	Difference	% of Audit Value
Low-Level				
12/05/17 10:17	0.600	0.000	0.600	#Error
12/05/17 10:34	1.400	0.000	1.400	#Error
12/05/17 10:52	0.000	0.000	0.000	#Error

CEMS Mean (Cm): 0.667
Audit Mean (Ca): 0.000
Accuracy (A) in %: #Error
Mean Difference: 0.7
APS Indicator: 0
Cylinder #:
Cylinder Exp. Date:

Attachment 6: Reportable Discharges per 60.108a(c)(6)

Discharge 1-Main Flare		Update(s)
Date and Time Discharge first Identified	7/2/2017 08:30 am	N/A
Source	Main Flare (Source ID 103)	N/A
Description of the Discharge:	A pressure safety valve on the Isocracker unit lifted, resulting in a breach of the liquid seal drum.	N/A
Duration of the Discharge	4 hours	N/A
Quantity of Gas Discharged from the flare (Totals - MSCF)	7/2/17 10:00 - 515.7 MSCF 24hr roll. total 7/2/17 11:00 - 515.1 MSCF 24hr roll. total 7/2/17 12:00 - 508.6 MSCF 24hr roll. total 7/2/17 13:00 - 506.6 MSCF 24hr roll. total	N/A
Was discharge greater than 500 lbs SO_2/24 hours?	No	N/A
Steps taken to limit the emissions during the discharge?	Steam to flare increased to prevent smoking	N/A
Root causes	1. Console operator error resulted in an Isocracker pressure safety valve relief due to high pressure.	N/A
Corrective Actions	1. The process team will develop a summary of the incident to train console operators on in order to prevent similar events in the future. The summary will be developed and reviewed with console operators between the August 16, 2017 RCA file date and a deadline of October 4, 2017.	Complete
Did discharge result from same root cause as previous discharge?	No	N/A

Discharge 2-Main Flare		Update(s)
Date and Time Discharge first Identified	7/21/2017 23:40	N/A
Source	Main Flare (Source ID 103)	N/A
Description of the Discharge:	On July 21st, at 11:25 pm, an upset on the 2nd stage feed pump of the Isocracker unit caused the Isocracker unit to shut down. Because the Isocracker is consumer of both hydrogen and fuel gas, the shutdown of the Isocracker led to the flaring of fuel gas. The 2nd stage Isocracker shut down due to motor issues with the 2nd stage pump, 21P002A. The 2nd stage pump and the 1st stage pump have a common spare, but the block valves used to isolate the 1st stage from the 2nd stage would not hold, meaning that the spare could not be started, and necessitating the shutdown of the Isocracker. The pump failure was due to motor issues that would have been corrected by preventative maintenance (the motor was in need of cleaning, and the air filters needed replaced). The maintenance had been scheduled, but due to the block valves not holding, the common spare could not be started, resulting in delay of the preventative maintenance. The block valves were assessed, and could not be replaced without a unit shutdown. The block valves were replaced during this shutdown of the Isocracker. With the shutdown of the Isocracker, the refinery became fuel gas long, resulting in flaring above the baseline. Because the pump shutdown was unplanned, this event is considered to require a Root Cause Analysis.	N/A
Duration of the Discharge	42 hours	N/A
Quantity of Gas Discharged from the flare (Daily Totals - MSCF): 7/21/2017 210.0 7/22/2017 2,567.8 7/23/2017 160.4		N/A
Was discharge greater than 500 lbs SO_2/24 hours?	No	N/A
Steps taken to limit the emissions during the discharge?	Prior to the event, the refinery had been on the verge of going fuel gas long. With the crude slate prior to the event, the production of fuel gas was high. Crude throughput was cut at the facility in order to prevent fuel gas flaring in excess of demand. During the event, only clean fuel gas was routed to the flare. The maximum flare SO2 emissions were at 4.3 lb SO2.	N/A
Root causes	1. Block valves on the 1st stage would not hold – Due to the block valves not holding, preventative maintenance could not be completed on 21P002A. Additionally, when the 2nd stage pump shutdown, the common spare was unable to be restarted to take the place of the 2nd stage pump	N/A
Corrective Actions	1. Replace block valves on 1st stage	Completed
Did discharge result from same root cause as previous discharge?	No	N/A

Discharge 3-Main Flare		Update(s)
Date and Time Discharge first Identified	8/6/2017 09:00 am	N/A
Source	Main Flare (Source ID 103)	N/A
Description of the Discharge:	A leak on the Iso de-ethanizer reboiler heat exchanger required the tower to be depressurized to the flare system for repairs.	N/A
Duration of the Discharge	31 hours	N/A
Quantity of Gas Discharged from the flare (Totals - MSCF)		N/A
8/6/2017 484		N/A
8/7/2017 301		N/A
Was discharge greater than 500 lbs SO_2/24 hours?	No	N/A
Steps taken to limit the emissions during the discharge?	Both flare gas recovery compressors were operated in order to minimize the quantity of gas flared. The depressuring rate was regulated so that the compressors could handle the flare system load. Only a total 9.1 MSCF of gas actually breached the seal drum and went directly to the flare. The balance (775.9 MSCF) was clean refinery fuel gas. Purchased natural gas was minimized while the tower was being depressured to reduce fuel gas flaring.	N/A
Root causes	1. A small hole on the de-ethanizer reboiler heat exchanger required the tower to be depressurized to the flare system for repairs.	N/A
Corrective Actions	1. An investigation for the cause of the de-ethanizer reboiler heat exchanger leak began prior to the 45-day, 9/17/2017 regulatory deadline for RCA filing. The investigation will be completed by 10/31/17.	Complete
Investigation Action Items	1. Develop a periodic inspection plan of the damaged areas with an interval not to exceed 6 months in order to help establish a corrosion rate and/or confirm if continues to occur. 2. Review the incident with inspectors and emphasize the importance of recommending/insisting on proper cleaning of exchangers' shells for internal inspections due to the likelihood of baffles scraping debris into pits or other corroded areas	Complete Complete
Did discharge result from same root cause as previous discharge?	No	N/A

Discharge 1 - Sulfur Recovery Unit		Update(s)
Incident start (date/time)	SCOT heater trip at 20:18 on 7/23/2017 SO_2 limits exceeded at 01:00 on 7/24/2017	N/A
Incident end (date/time)	SO_2 emissions returned to normal at 19:00 on 7/25/2017	N/A
Source	Claus Sulfur Recovery Unit (Source ID 102)	N/A
Duration of discharge (hours)	42	N/A
Avg. SO_2 discharge concentration (ppm)	1,500	N/A
Quantity of H_2S Emitted (lbs)	0.04	N/A
Quantity of SO_2 Emitted (lbs)	2,000 Calculation in Attachment A, per paragraph 153(b) of Consent Decree	N/A
Was discharge >500 lbs SO_2/24 hours?	Yes	N/A
Description of discharge	The SCOT heater unit tripped offline, and despite numerous attempts to restart, did not relight because of an ignitor malfunction. Train number two of the Claus Sulfur Recovery Unit was diverted directly to the incinerator so that repairs could be completed to the ignitor. Had train number two not have been diverted, the potential for more serious process upsets with more significant environmental consequences would have existed.	N/A
Quantity of discharge (totals – MSCF)	Event total: 7,777	N/A
	Daily totals: 7/24/2017 4,510 7/25/2017 3,267	N/A
Steps taken to limit the emissions during the discharge?	1. Immediately upon identifying signs that the air-to-fuel ratio within SCOT heater was dropping, console operators attempted to recover SCOT heater operations by increasing airflow before the unit tripped. 2. Concurrently, console operators called in the process control team to reset the SCOT heater control system in attempt to restart the heater. 3. Train number two of the Claus Sulfur Recover Unit was diverted directly to the incinerator to prevent SO_2 breakthrough to the Quench Tower from cooling reactor bed temperatures. 4. After suspecting that the cause of the ignitor failure to light the SCOT heater was an electrical issue, I/E was called-in an on emergency Work Order TW54817 while off-shift to repair ignitor. 5. A crack in the ignitor was identified. A new ignitor was fabricated and installed during hour 13:00 on 7/24/17.	N/A

Root causes		Update(s)
1. The transmitter indicating natural gas flow to the SCOT heater experienced an electrical malfunction which could not be identified at the time of the incident. After the incident was resolved, loose wiring was identified on the transmitter, and it is believed to be the cause of the initial transmitter failure. 2. The SCOT heater was unable to be immediately relit because of a crack found in the ignitor, preventing re-ignition.		N/A
Did discharge result from same root cause as a previous discharge?	No	N/A
Corrective actions		
1. Through the process of troubleshooting by the I/E group, the natural gas transmitter readings returned to normal, although the cause of the transmitter failure was not identified until after the incident concluded. See corrective action #2.		Complete
2. Loose wiring on the natural gas flow transmitter was identified after the incident was resolved. The natural gas flow transmitter wiring was repaired.		Complete
3. A new SCOT heater ignitor was fabricated and installed on 7/24/17 during hour 13:00. The SCOT heater was placed back into service following installation of the new ignitor.		Complete
Analysis of measures, if any, available to reduce the likelihood of a recurrence resulting from the same root cause or contributing causes in the future		N/A
Delay in re-lighting the furnace may have been reduced by maintaining a spare ignitor on-site. Recommend maintaining a spare ignitor on-site. For a future incident of this kind in which there are no other issues which hinder the ability for operating staff to install ignitor equipment, a spare ignitor could be installed quickly enough to prevent or reduce the duration of an exceedance of the SO2 concentration standard. In an effort to prevent similar incidents, a spare ignitor will be maintained on-site by the end October 2017. As of the date of this submission, a spare ignitor has been ordered under purchase order# TPO17993 at a cost of $4750.		N/A
Information required by Consent Decree Paragraph 153(f)(1), (2), (3)		
(f)(1) The Tail Gas Incident does not fall under the ground of Consent Decree Paragraphs 158 and 159. It is not the conclusion of this RCA that the event resulted from error on the part of operations personnel, failure to follow written procedures, or failure to operate and maintain equipment in a manner consistent with good engineering practice. (f)(2) This Tail Gas Incident falls under Paragraph 161(a)(1) of the Consent Decree. This incident was sudden, infrequent, and not reasonably preventable. The cause of the heater trip was not immediately identifiable. (f)(3) This Tail Gas Incident does not fall under Paragraph 159 or 161(b). Console operators immediately began troubleshooting operation of the SCOT heater. Immediately after identifying the possibility of an instrument issue, console operators called in I/E to troubleshoot. Troubleshooting continued diligently until the transmitter and ignitor malfunctions were identified and repaired. Monroe continues to follow its PMO plan, and has not experienced a tail gas incident, as defined in the Consent Decree, in greater than one year prior to this incident.		N/A

Attachment 7: Daily Drift Test Results for the FCCU SO2 Analyzer

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
O2										
07/01/2017 05:57	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
07/02/2017 05:57	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
07/03/2017 05:57	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
07/04/2017 05:57	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
07/05/2017 05:57	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
07/06/2017 05:57	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
07/07/2017 05:57	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
07/07/2017 07:39	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
07/08/2017 05:57	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
07/09/2017 05:57	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
07/10/2017 05:57	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/10/2017 07:46	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
07/11/2017 05:57	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/11/2017 07:43	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/12/2017 05:57	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
07/13/2017 05:57	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/14/2017 05:57	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
07/15/2017 05:57	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
07/16/2017 05:57	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
07/17/2017 05:57	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/18/2017 05:57	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/19/2017 05:57	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
07/20/2017 05:57	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
07/21/2017 05:57	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
07/22/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
07/23/2017 05:56	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
07/24/2017 05:56	0.0	-0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
07/25/2017 05:56	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
07/26/2017 05:56	0.0	-0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/27/2017 05:56	0.0	-0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
07/28/2017 05:56	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
07/29/2017 05:56	0.0	-0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
07/30/2017 05:56	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
07/30/2017 09:54	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
07/31/2017 05:57	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/01/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/02/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/03/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/03/2017 08:07	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
08/04/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/05/2017 05:55	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/06/2017 05:55	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
08/06/2017 10:22	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
O2										
08/07/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/08/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
08/09/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/10/2017 05:56	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
08/11/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/12/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/13/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/14/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/15/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
08/16/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/17/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/18/2017 05:56	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/18/2017 07:51	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/19/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
08/20/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/21/2017 05:56	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
08/22/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/22/2017 07:54	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/23/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
08/24/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/25/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
08/25/2017 07:30	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
08/26/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/27/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/28/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/28/2017 08:15	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/29/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
08/30/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
08/31/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
08/31/2017 08:30	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/01/2017 05:57	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
09/02/2017 05:56	0.0	0.2	0.2	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
09/03/2017 05:56	0.0	0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/04/2017 05:56	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
09/05/2017 05:56	0.0	0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/06/2017 05:56	0.0	0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
09/06/2017 07:21	0.0	0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/07/2017 05:56	0.0	0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/08/2017 05:56	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
09/09/2017 05:56	0.0	0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
09/10/2017 05:56	0.0	0.1	0.1	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
09/10/2017 10:02	0.0	0.2	0.2	21.9	0.4	21.5	1.0	DIFF	**Failed**	Yes
09/10/2017 10:30	0.0	0.3	0.3	21.9	22.1	0.2	1.0	DIFF	Passed	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
O2										
09/11/2017 05:56	0.0	0.3	0.3	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/12/2017 05:56	0.0	-0.5	0.5	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
09/13/2017 05:56	0.0	-0.5	0.5	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
09/14/2017 05:56	0.0	-0.5	0.5	21.9	21.6	0.3	1.0	DIFF	Passed	Yes
09/15/2017 05:56	0.0	-0.5	0.5	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
09/15/2017 07:02	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/15/2017 07:27	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/16/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/17/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/18/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/19/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
09/20/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
09/21/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/22/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/23/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
09/24/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/25/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/26/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
09/27/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
09/28/2017 05:56	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
09/29/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
09/30/2017 05:56	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
10/01/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/01/2017 08:06	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/01/2017 08:56	0.0	-0.1	0.1	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
10/02/2017 05:56	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/03/2017 05:56	0.0	-0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
10/04/2017 05:56	0.0	-0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
10/05/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
10/06/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
10/07/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
10/07/2017 10:36	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/08/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
10/09/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
10/10/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
10/11/2017 05:56	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
10/12/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
10/12/2017 07:05	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/13/2017 05:56	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
10/14/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/15/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
10/16/2017 05:56	0.0	0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
10/17/2017 05:56	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
O2										
10/18/2017 05:56	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/19/2017 05:56	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/20/2017 05:56	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/20/2017 10:30	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/21/2017 05:56	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/22/2017 05:56	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
10/23/2017 05:56	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
10/24/2017 05:55	0.0	-0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
10/24/2017 07:48	0.0	-0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
10/25/2017 05:56	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
10/26/2017 05:56	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
10/27/2017 05:56	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
10/28/2017 05:56	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
10/29/2017 05:56	0.0	-0.1	0.1	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
10/30/2017 05:56	0.0	-0.1	0.1	21.9	21.4	0.5	1.0	DIFF	Passed	Yes
10/31/2017 05:55	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
11/01/2017 05:55	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/02/2017 05:55	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/02/2017 07:26	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
11/03/2017 05:55	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/03/2017 07:26	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/04/2017 05:55	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
11/04/2017 07:26	0.0	-0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
11/05/2017 05:55	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/05/2017 07:26	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/06/2017 05:55	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/06/2017 07:26	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/07/2017 05:55	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/08/2017 05:55	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/09/2017 05:55	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/10/2017 05:55	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
11/11/2017 05:55	0.0	-0.1	0.1	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
11/12/2017 05:55	0.0	0.0	0.0	21.9	22.4	0.5	1.0	DIFF	Passed	Yes
11/13/2017 05:55	0.0	-0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
11/14/2017 05:55	0.0	-0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/14/2017 08:51	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
11/15/2017 05:55	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/16/2017 05:55	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/16/2017 09:14	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/17/2017 05:55	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
11/18/2017 05:55	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
11/19/2017 05:55	0.0	0.0	0.0	21.9	21.4	0.5	1.0	DIFF	Passed	Yes
11/20/2017 05:55	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
O2										
11/21/2017 05:55	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/21/2017 10:34	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/22/2017 05:55	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
11/22/2017 08:41	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
11/23/2017 05:55	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/24/2017 05:55	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
11/25/2017 05:55	0.0	0.0	0.0	21.9	21.6	0.3	1.0	DIFF	Passed	Yes
11/26/2017 05:55	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
11/27/2017 05:55	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
11/28/2017 05:55	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
11/29/2017 05:55	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
11/30/2017 05:55	0.0	0.0	0.0	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
11/30/2017 09:05	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
12/01/2017 05:55	0.0	-0.1	0.1	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
12/02/2017 05:55	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
12/03/2017 05:55	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
12/04/2017 05:55	0.0	-0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
12/04/2017 08:35	0.0	0.0	0.0	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
12/05/2017 05:55	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
12/06/2017 05:55	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
12/07/2017 05:55	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
12/08/2017 05:55	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
12/09/2017 05:55	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
12/10/2017 05:55	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
12/10/2017 10:47	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
12/11/2017 05:55	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
12/12/2017 05:55	0.0	0.1	0.1	21.9	21.6	0.3	1.0	DIFF	Passed	Yes
12/13/2017 05:55	0.0	0.1	0.1	21.9	22.0	0.1	1.0	DIFF	Passed	Yes
12/14/2017 05:55	0.0	0.1	0.1	21.9	22.1	0.2	1.0	DIFF	Passed	Yes
12/15/2017 05:55	0.0	0.1	0.1	21.9	22.4	0.5	1.0	DIFF	Passed	Yes
12/16/2017 05:55	0.0	0.1	0.1	21.9	22.5	0.6	1.0	DIFF	Maint Limit	Yes
12/17/2017 05:55	0.0	0.1	0.1	21.9	22.5	0.6	1.0	DIFF	Maint Limit	Yes
12/18/2017 05:55	0.0	0.1	0.1	21.9	22.5	0.6	1.0	DIFF	Maint Limit	Yes
12/19/2017 05:55	0.0	0.1	0.1	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
12/20/2017 05:55	0.0	0.1	0.1	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
12/20/2017 08:56	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
12/21/2017 05:55	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
12/22/2017 05:55	0.0	0.0	0.0	21.9	22.6	0.7	1.0	DIFF	Maint Limit	Yes
12/23/2017 05:55	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
12/24/2017 05:55	0.0	0.0	0.0	21.9	22.7	0.8	1.0	DIFF	Maint Limit	Yes
12/24/2017 15:29	0.0	0.0	0.0	21.9	22.7	0.8	1.0	DIFF	Maint Limit	Yes
12/25/2017 05:55	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes
12/25/2017 08:38	0.0	0.0	0.0	21.9	22.3	0.4	1.0	DIFF	Passed	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
O2										
12/25/2017 11:38	0.0	-0.1	0.1	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
12/26/2017 05:55	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
12/27/2017 05:55	0.0	0.0	0.0	21.9	22.2	0.3	1.0	DIFF	Passed	Yes
12/28/2017 05:55	0.0	0.0	0.0	21.9	22.5	0.6	1.0	DIFF	Maint Limit	Yes
12/28/2017 08:44	0.0	0.0	0.0	21.9	21.9	0.0	1.0	DIFF	Passed	Yes
12/29/2017 05:55	0.0	0.0	0.0	21.9	21.6	0.3	1.0	DIFF	Passed	Yes
12/29/2017 08:22	0.0	0.0	0.0	21.9	21.7	0.2	1.0	DIFF	Passed	Yes
12/30/2017 05:56	0.0	0.0	0.0	21.9	21.5	0.4	1.0	DIFF	Passed	Yes
12/31/2017 05:56	0.0	0.0	0.0	21.9	21.8	0.1	1.0	DIFF	Passed	Yes
SO2										
07/01/2017 05:49	0.0	0.7	0.7	83.3	85.0	1.7	5.0	DIFF	Passed	Yes
07/02/2017 05:49	0.0	3.3	3.3	83.3	79.8	3.5	5.0	DIFF	Maint Limit	Yes
07/03/2017 05:49	0.0	1.3	1.3	83.3	87.5	4.2	5.0	DIFF	Maint Limit	Yes
07/04/2017 05:49	0.0	0.2	0.2	83.3	83.7	0.4	5.0	DIFF	Passed	Yes
07/05/2017 05:49	0.0	-0.2	0.2	83.3	85.8	2.5	5.0	DIFF	Maint Limit	Yes
07/06/2017 05:49	0.0	-0.8	0.8	83.3	83.2	0.1	5.0	DIFF	Passed	Yes
07/07/2017 05:49	0.0	2.7	2.7	83.3	88.4	5.1	5.0	DIFF	Failed	Yes
07/07/2017 07:31	0.0	0.9	0.9	83.3	83.9	0.6	5.0	DIFF	Passed	Yes
07/08/2017 05:49	0.0	-1.2	1.2	83.3	84.1	0.8	5.0	DIFF	Passed	Yes
07/09/2017 05:49	0.0	-4.4	4.4	83.3	83.8	0.5	5.0	DIFF	Maint Limit	Yes
07/10/2017 05:49	0.0	-6.5	6.5	83.3	81.5	1.8	5.0	DIFF	Failed	Yes
07/10/2017 07:38	0.0	1.3	1.3	83.3	86.2	2.9	5.0	DIFF	Maint Limit	Yes
07/11/2017 05:49	0.0	99.0	99.0	83.3	99.0	15.7	5.0	DIFF	Failed	Yes
07/11/2017 07:35	0.0	1.9	1.9	83.3	84.2	0.9	5.0	DIFF	Passed	Yes
07/12/2017 05:49	0.0	-0.2	0.2	83.3	84.3	1.0	5.0	DIFF	Passed	Yes
07/13/2017 05:49	0.0	1.9	1.9	83.3	80.9	2.4	5.0	DIFF	Maint Limit	Yes
07/14/2017 05:49	0.0	0.0	0.0	83.3	85.1	1.8	5.0	DIFF	Passed	Yes
07/15/2017 05:49	0.0	0.1	0.1	83.3	85.2	1.9	5.0	DIFF	Passed	Yes
07/16/2017 05:49	0.0	-0.8	0.8	83.3	80.0	3.3	5.0	DIFF	Maint Limit	Yes
07/17/2017 05:49	0.0	-1.4	1.4	83.3	83.7	0.4	5.0	DIFF	Passed	Yes
07/18/2017 05:49	0.0	-1.0	1.0	83.3	83.3	0.0	5.0	DIFF	Passed	Yes
07/19/2017 05:49	0.0	-1.1	1.1	83.3	83.8	0.5	5.0	DIFF	Passed	Yes
07/20/2017 05:49	0.0	-0.9	0.9	83.3	81.4	1.9	5.0	DIFF	Passed	Yes
07/21/2017 05:49	0.0	-1.7	1.7	83.3	80.6	2.7	5.0	DIFF	Maint Limit	Yes
07/22/2017 05:48	0.0	-2.1	2.1	83.3	82.1	1.2	5.0	DIFF	Maint Limit	Yes
07/23/2017 05:48	0.0	-2.6	2.6	83.3	81.4	1.9	5.0	DIFF	Maint Limit	Yes
07/24/2017 05:48	0.0	-1.5	1.5	83.3	79.4	3.9	5.0	DIFF	Maint Limit	Yes
07/25/2017 05:48	0.0	-2.0	2.0	83.3	84.1	0.8	5.0	DIFF	Passed	Yes
07/26/2017 05:48	0.0	-3.0	3.0	83.3	83.2	0.1	5.0	DIFF	Maint Limit	Yes
07/27/2017 05:48	0.0	-3.5	3.5	83.3	81.6	1.7	5.0	DIFF	Maint Limit	Yes
07/28/2017 05:49	0.0	-2.2	2.2	83.3	81.9	1.4	5.0	DIFF	Maint Limit	Yes
07/29/2017 05:49	0.0	-2.1	2.1	83.3	80.8	2.5	5.0	DIFF	Maint Limit	Yes
07/30/2017 05:48	0.0	-5.9	5.9	83.3	79.5	3.8	5.0	DIFF	Failed	Yes

Calibration Error: **Failed Test** | Failed Level | Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
SO2										
07/30/2017 09:46	0.0	1.2	1.2	83.3	81.6	1.7	5.0	DIFF	Passed	Yes
07/31/2017 05:49	0.0	0.1	0.1	83.3	85.6	2.3	5.0	DIFF	Maint Limit	Yes
08/01/2017 05:48	0.0	0.9	0.9	83.3	81.5	1.8	5.0	DIFF	Passed	Yes
08/02/2017 05:48	0.0	2.1	2.1	83.3	87.3	4.0	5.0	DIFF	Maint Limit	Yes
08/03/2017 05:48	0.0	4.0	4.0	83.3	88.4	5.1	5.0	DIFF	Failed	Yes
08/03/2017 07:59	0.0	-1.4	1.4	83.3	82.1	1.2	5.0	DIFF	Passed	Yes
08/04/2017 05:48	0.0	-1.9	1.9	83.3	81.6	1.7	5.0	DIFF	Passed	Yes
08/05/2017 05:47	0.0	-1.7	1.7	83.3	79.3	4.0	5.0	DIFF	Maint Limit	Yes
08/06/2017 05:47	0.0	-5.0	5.0	83.3	75.1	8.2	5.0	DIFF	Failed	Yes
08/06/2017 10:14	0.0	1.8	1.8	83.3	83.5	0.2	5.0	DIFF	Passed	Yes
08/07/2017 05:48	0.0	-0.6	0.6	83.3	81.3	2.0	5.0	DIFF	Passed	Yes
08/08/2017 05:48	0.0	3.1	3.1	83.3	81.5	1.8	5.0	DIFF	Maint Limit	Yes
08/09/2017 05:48	0.0	-0.4	0.4	83.3	83.4	0.1	5.0	DIFF	Passed	Yes
08/10/2017 05:48	0.0	-0.6	0.6	83.3	80.7	2.6	5.0	DIFF	Maint Limit	Yes
08/11/2017 05:48	0.0	-0.9	0.9	83.3	82.3	1.0	5.0	DIFF	Passed	Yes
08/12/2017 05:48	0.0	2.4	2.4	83.3	84.7	1.4	5.0	DIFF	Maint Limit	Yes
08/13/2017 05:48	0.0	4.1	4.1	83.3	79.9	3.4	5.0	DIFF	Maint Limit	Yes
08/14/2017 05:48	0.0	1.0	1.0	83.3	84.2	0.9	5.0	DIFF	Passed	Yes
08/15/2017 05:48	0.0	2.2	2.2	83.3	84.1	0.8	5.0	DIFF	Maint Limit	Yes
08/16/2017 05:48	0.0	4.6	4.6	83.3	87.1	3.8	5.0	DIFF	Maint Limit	Yes
08/17/2017 05:48	0.0	3.7	3.7	83.3	85.6	2.3	5.0	DIFF	Maint Limit	Yes
08/18/2017 05:48	0.0	3.8	3.8	83.3	86.7	3.4	5.0	DIFF	Maint Limit	Yes
08/18/2017 07:43	0.0	1.3	1.3	83.3	82.7	0.6	5.0	DIFF	Passed	Yes
08/19/2017 05:48	0.0	0.6	0.6	83.3	80.3	3.0	5.0	DIFF	Maint Limit	Yes
08/20/2017 05:48	0.0	-2.5	2.5	83.3	80.2	3.1	5.0	DIFF	Maint Limit	Yes
08/21/2017 05:48	0.0	-3.2	3.2	83.3	80.0	3.3	5.0	DIFF	Maint Limit	Yes
08/22/2017 05:48	0.0	-0.3	0.3	83.3	75.6	7.7	5.0	DIFF	Failed	Yes
08/22/2017 07:46	0.0	1.0	1.0	83.3	83.8	0.5	5.0	DIFF	Passed	Yes
08/23/2017 05:48	0.0	0.5	0.5	83.3	83.2	0.1	5.0	DIFF	Passed	Yes
08/24/2017 05:48	0.0	-3.2	3.2	83.3	80.1	3.2	5.0	DIFF	Maint Limit	Yes
08/25/2017 05:48	0.0	-3.8	3.8	83.3	62.9	20.4	5.0	DIFF	Failed	Yes
08/25/2017 07:22	0.0	0.8	0.8	83.3	82.6	0.7	5.0	DIFF	Passed	Yes
08/26/2017 05:48	0.0	-0.8	0.8	83.3	78.5	4.8	5.0	DIFF	Maint Limit	Yes
08/27/2017 05:48	0.0	-0.4	0.4	83.3	79.3	4.0	5.0	DIFF	Maint Limit	Yes
08/28/2017 05:48	0.0	-1.8	1.8	83.3	78.0	5.3	5.0	DIFF	Failed	Yes
08/28/2017 08:07	0.0	0.1	0.1	83.3	81.1	2.2	5.0	DIFF	Maint Limit	Yes
08/29/2017 05:48	0.0	0.0	0.0	83.3	80.6	2.7	5.0	DIFF	Maint Limit	Yes
08/30/2017 05:48	0.0	0.3	0.3	83.3	79.9	3.4	5.0	DIFF	Maint Limit	Yes
08/31/2017 05:48	0.0	0.3	0.3	83.3	79.5	3.8	5.0	DIFF	Maint Limit	Yes
08/31/2017 08:22	0.0	1.1	1.1	83.3	81.9	1.4	5.0	DIFF	Passed	Yes
09/01/2017 05:49	0.0	-0.2	0.2	83.4	80.0	3.4	5.0	DIFF	Maint Limit	Yes
09/02/2017 05:49	0.0	-0.3	0.3	83.4	81.6	1.8	5.0	DIFF	Passed	Yes
09/03/2017 05:49	0.0	0.3	0.3	83.4	80.5	2.9	5.0	DIFF	Maint Limit	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
SO2										
09/04/2017 05:49	0.0	0.4	0.4	83.4	82.0	1.4	5.0	DIFF	Passed	Yes
09/05/2017 05:48	0.0	1.2	1.2	83.4	81.7	1.7	5.0	DIFF	Passed	Yes
09/06/2017 05:48	0.0	5.2	5.2	83.4	84.2	0.8	5.0	DIFF	Failed	Yes
09/06/2017 07:13	0.0	0.9	0.9	83.4	82.0	1.4	5.0	DIFF	Passed	Yes
09/07/2017 05:48	0.0	-2.7	2.7	83.4	79.3	4.1	5.0	DIFF	Maint Limit	Yes
09/08/2017 05:48	0.0	-3.7	3.7	83.4	78.5	4.9	5.0	DIFF	Maint Limit	Yes
09/09/2017 05:48	0.0	-4.0	4.0	83.4	79.0	4.4	5.0	DIFF	Maint Limit	Yes
09/10/2017 05:48	0.0	-4.4	4.4	83.4	77.8	5.6	5.0	DIFF	Failed	Yes
09/10/2017 09:57	0.0	-0.1	0.1	83.4	82.6	0.8	5.0	DIFF	Passed	Yes
09/10/2017 10:22	0.0	0.4	0.4	83.4	82.1	1.3	5.0	DIFF	Passed	Yes
09/11/2017 05:48	0.0	-0.2	0.2	83.4	81.4	2.0	5.0	DIFF	Passed	Yes
09/12/2017 05:48	0.0	0.1	0.1	83.4	84.1	0.7	5.0	DIFF	Passed	Yes
09/13/2017 05:48	0.0	0.2	0.2	83.4	82.9	0.5	5.0	DIFF	Passed	Yes
09/14/2017 05:48	0.0	4.5	4.5	83.4	86.5	3.1	5.0	DIFF	Maint Limit	Yes
09/15/2017 05:48	0.0	5.3	5.3	83.4	87.1	3.7	5.0	DIFF	Failed	Yes
09/15/2017 06:54	0.0	-0.5	0.5	83.4	83.0	0.4	5.0	DIFF	Passed	Yes
09/15/2017 07:19	0.0	0.0	0.0	83.4	84.0	0.6	5.0	DIFF	Passed	Yes
09/16/2017 05:48	0.0	-0.2	0.2	83.4	85.3	1.9	5.0	DIFF	Passed	Yes
09/17/2017 05:48	0.0	1.4	1.4	83.4	81.9	1.5	5.0	DIFF	Passed	Yes
09/18/2017 05:48	0.0	1.7	1.7	83.4	86.6	3.2	5.0	DIFF	Maint Limit	Yes
09/19/2017 05:48	0.0	2.2	2.2	83.4	84.4	1.0	5.0	DIFF	Maint Limit	Yes
09/20/2017 05:48	0.0	0.6	0.6	83.4	85.5	2.1	5.0	DIFF	Maint Limit	Yes
09/21/2017 05:48	0.0	0.5	0.5	83.4	85.6	2.2	5.0	DIFF	Maint Limit	Yes
09/22/2017 05:48	0.0	-1.2	1.2	83.4	84.4	1.0	5.0	DIFF	Passed	Yes
09/23/2017 05:48	0.0	-2.5	2.5	83.4	82.7	0.7	5.0	DIFF	Maint Limit	Yes
09/24/2017 05:48	0.0	-2.6	2.6	83.4	79.0	4.4	5.0	DIFF	Maint Limit	Yes
09/25/2017 05:48	0.0	-0.5	0.5	83.4	84.1	0.7	5.0	DIFF	Passed	Yes
09/26/2017 05:48	0.0	0.3	0.3	83.4	84.0	0.6	5.0	DIFF	Passed	Yes
09/27/2017 05:48	0.0	1.5	1.5	83.4	86.2	2.8	5.0	DIFF	Maint Limit	Yes
09/28/2017 05:48	0.0	1.9	1.9	83.4	84.2	0.8	5.0	DIFF	Passed	Yes
09/29/2017 05:48	0.0	-1.5	1.5	83.4	83.6	0.2	5.0	DIFF	Passed	Yes
09/30/2017 05:48	0.0	-1.8	1.8	83.4	84.4	1.0	5.0	DIFF	Passed	Yes
10/01/2017 05:48	0.0	-1.9	1.9	83.4	83.8	0.4	5.0	DIFF	Passed	Yes
10/01/2017 07:58	0.0	-2.0	2.0	83.4	85.1	1.7	5.0	DIFF	Passed	Yes
10/01/2017 08:48	0.0	-2.4	2.4	83.4	84.8	1.4	5.0	DIFF	Maint Limit	Yes
10/02/2017 05:48	0.0	-2.5	2.5	83.4	83.4	0.0	5.0	DIFF	Maint Limit	Yes
10/03/2017 05:48	0.0	-2.1	2.1	83.4	86.1	2.7	5.0	DIFF	Maint Limit	Yes
10/04/2017 05:48	0.0	-2.7	2.7	83.4	85.4	2.0	5.0	DIFF	Maint Limit	Yes
10/05/2017 05:48	0.0	0.1	0.1	83.4	85.2	1.8	5.0	DIFF	Passed	Yes
10/06/2017 05:48	0.0	0.6	0.6	83.4	78.7	4.7	5.0	DIFF	Maint Limit	Yes
10/07/2017 05:48	0.0	2.6	2.6	83.4	87.0	3.6	5.0	DIFF	Maint Limit	Yes
10/07/2017 10:28	0.0	-0.4	0.4	83.4	85.3	1.9	5.0	DIFF	Passed	Yes
10/08/2017 05:48	0.0	2.3	2.3	83.4	83.4	0.0	5.0	DIFF	Maint Limit	Yes

Calibration Error: **Failed Test** | Failed Level | Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
SO2										
10/09/2017 05:48	0.0	2.8	2.8	83.4	88.1	4.7	5.0	DIFF	Maint Limit	Yes
10/10/2017 05:48	0.0	3.1	3.1	83.4	86.9	3.5	5.0	DIFF	Maint Limit	Yes
10/11/2017 05:48	0.0	1.9	1.9	83.4	86.9	3.5	5.0	DIFF	Maint Limit	Yes
10/12/2017 05:48	0.0	-0.8	0.8	83.4	51.4	32.0	5.0	DIFF	Failed	Yes
10/12/2017 06:57	0.0	0.6	0.6	83.4	86.4	3.0	5.0	DIFF	Maint Limit	Yes
10/13/2017 05:48	0.0	-1.4	1.4	83.4	83.1	0.3	5.0	DIFF	Passed	Yes
10/14/2017 05:48	0.0	-1.1	1.1	83.4	82.0	1.4	5.0	DIFF	Passed	Yes
10/15/2017 05:48	0.0	0.1	0.1	83.4	81.5	1.9	5.0	DIFF	Passed	Yes
10/16/2017 05:48	0.0	0.6	0.6	83.4	82.8	0.6	5.0	DIFF	Passed	Yes
10/17/2017 05:48	0.0	-0.9	0.9	83.4	82.4	1.0	5.0	DIFF	Passed	Yes
10/18/2017 05:48	0.0	-2.0	2.0	83.4	83.9	0.5	5.0	DIFF	Passed	Yes
10/19/2017 05:48	0.0	-2.0	2.0	83.4	83.5	0.1	5.0	DIFF	Passed	Yes
10/20/2017 05:48	0.0	-2.8	2.8	83.4	81.5	1.9	5.0	DIFF	Maint Limit	Yes
10/20/2017 10:22	0.0	0.1	0.1	88.7	89.6	0.9	5.0	DIFF	Passed	Yes
10/21/2017 05:48	0.0	-0.1	0.1	88.7	89.9	1.2	5.0	DIFF	Passed	Yes
10/22/2017 05:48	0.0	-0.1	0.1	88.7	91.8	3.1	5.0	DIFF	Maint Limit	Yes
10/23/2017 05:48	0.0	-0.1	0.1	88.7	93.2	4.5	5.0	DIFF	Maint Limit	Yes
10/24/2017 05:47	0.0	0.6	0.6	88.7	81.7	7.0	5.0	DIFF	Failed	Yes
10/24/2017 07:40	0.0	1.3	1.3	88.7	90.0	1.3	5.0	DIFF	Passed	Yes
10/25/2017 05:48	0.0	1.0	1.0	88.7	89.1	0.4	5.0	DIFF	Passed	Yes
10/26/2017 05:48	0.0	0.4	0.4	88.7	91.4	2.7	5.0	DIFF	Maint Limit	Yes
10/27/2017 05:48	0.0	-0.7	0.7	88.7	89.4	0.7	5.0	DIFF	Passed	Yes
10/28/2017 05:48	0.0	-0.3	0.3	88.7	88.0	0.7	5.0	DIFF	Passed	Yes
10/29/2017 05:48	0.0	0.3	0.3	88.7	88.9	0.2	5.0	DIFF	Passed	Yes
10/30/2017 05:48	0.0	1.0	1.0	88.7	88.1	0.6	5.0	DIFF	Passed	Yes
10/31/2017 05:48	0.0	-0.4	0.4	88.7	91.8	3.1	5.0	DIFF	Maint Limit	Yes
11/01/2017 05:47	0.0	-0.6	0.6	88.7	91.1	2.4	5.0	DIFF	Maint Limit	Yes
11/02/2017 05:48	0.0	0.2	0.2	88.7	92.0	3.3	5.0	DIFF	Maint Limit	Yes
11/02/2017 07:18	0.0	0.5	0.5	88.7	90.6	1.9	5.0	DIFF	Passed	Yes
11/03/2017 05:47	0.0	-0.2	0.2	88.7	89.9	1.2	5.0	DIFF	Passed	Yes
11/03/2017 07:18	0.0	0.1	0.1	88.7	92.0	3.3	5.0	DIFF	Maint Limit	Yes
11/04/2017 05:47	0.0	0.0	0.0	88.7	91.9	3.2	5.0	DIFF	Maint Limit	Yes
11/04/2017 07:18	0.0	0.1	0.1	88.7	83.7	5.0	5.0	DIFF	Maint Limit	Yes
11/05/2017 05:47	0.0	0.2	0.2	88.7	91.3	2.6	5.0	DIFF	Maint Limit	Yes
11/05/2017 07:18	0.0	-0.1	0.1	88.7	93.0	4.3	5.0	DIFF	Maint Limit	Yes
11/06/2017 05:47	0.0	0.4	0.4	88.7	89.5	0.8	5.0	DIFF	Passed	Yes
11/06/2017 07:18	0.0	0.1	0.1	88.7	84.5	4.2	5.0	DIFF	Maint Limit	Yes
11/07/2017 05:47	0.0	0.9	0.9	88.7	89.6	0.9	5.0	DIFF	Passed	Yes
11/08/2017 05:47	0.0	-0.6	0.6	88.7	91.4	2.7	5.0	DIFF	Maint Limit	Yes
11/09/2017 05:47	0.0	-0.7	0.7	88.7	89.3	0.6	5.0	DIFF	Passed	Yes
11/10/2017 05:47	0.0	-0.2	0.2	88.7	91.2	2.5	5.0	DIFF	Maint Limit	Yes
11/11/2017 05:47	0.0	-1.2	1.2	88.7	91.2	2.5	5.0	DIFF	Maint Limit	Yes
11/12/2017 05:47	0.0	-1.4	1.4	88.7	91.3	2.6	5.0	DIFF	Maint Limit	Yes

Calibration Error: Failed Test | Failed Level | Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
SO2										
11/13/2017 05:47	0.0	-1.2	1.2	88.7	91.2	2.5	5.0	DIFF	Maint Limit	Yes
11/14/2017 05:47	0.0	-1.8	1.8	88.7	80.8	7.9	5.0	DIFF	Failed	Yes
11/14/2017 08:43	0.0	0.5	0.5	88.7	90.0	1.3	5.0	DIFF	Passed	Yes
11/15/2017 05:47	0.0	-1.4	1.4	88.7	89.3	0.6	5.0	DIFF	Passed	Yes
11/16/2017 05:47	0.0	-0.8	0.8	88.7	81.1	7.6	5.0	DIFF	Failed	Yes
11/16/2017 09:07	0.0	0.8	0.8	88.7	88.1	0.6	5.0	DIFF	Passed	Yes
11/17/2017 05:47	0.0	-1.3	1.3	88.7	89.9	1.2	5.0	DIFF	Passed	Yes
11/18/2017 05:47	0.0	-1.6	1.6	88.7	91.5	2.8	5.0	DIFF	Maint Limit	Yes
11/19/2017 05:47	0.0	-1.1	1.1	88.7	90.1	1.4	5.0	DIFF	Passed	Yes
11/20/2017 05:47	0.0	-1.4	1.4	88.7	85.5	3.2	5.0	DIFF	Maint Limit	Yes
11/21/2017 05:47	0.0	0.5	0.5	88.7	93.2	4.5	5.0	DIFF	Maint Limit	Yes
11/21/2017 10:26	0.0	1.3	1.3	88.7	88.8	0.1	5.0	DIFF	Passed	Yes
11/22/2017 05:47	0.0	-0.5	0.5	88.7	79.9	8.8	5.0	DIFF	Failed	Yes
11/22/2017 08:33	0.0	0.4	0.4	88.7	91.0	2.3	5.0	DIFF	Maint Limit	Yes
11/23/2017 05:47	0.0	-1.0	1.0	88.7	85.9	2.8	5.0	DIFF	Maint Limit	Yes
11/24/2017 05:47	0.0	-1.2	1.2	88.7	89.8	1.1	5.0	DIFF	Passed	Yes
11/25/2017 05:47	0.0	-0.8	0.8	88.7	88.2	0.5	5.0	DIFF	Passed	Yes
11/26/2017 05:47	0.0	-1.2	1.2	88.7	88.2	0.5	5.0	DIFF	Passed	Yes
11/27/2017 05:47	0.0	-1.1	1.1	88.7	91.2	2.5	5.0	DIFF	Maint Limit	Yes
11/28/2017 05:47	0.0	-1.1	1.1	88.7	84.9	3.8	5.0	DIFF	Maint Limit	Yes
11/29/2017 05:47	0.0	-0.5	0.5	88.7	91.1	2.4	5.0	DIFF	Maint Limit	Yes
11/30/2017 05:47	0.0	-0.8	0.8	88.7	80.8	7.9	5.0	DIFF	Failed	Yes
11/30/2017 08:57	0.0	0.7	0.7	88.7	91.2	2.5	5.0	DIFF	Maint Limit	Yes
12/01/2017 05:47	0.0	1.1	1.1	88.7	85.2	3.5	5.0	DIFF	Maint Limit	Yes
12/02/2017 05:47	0.0	0.3	0.3	88.7	85.5	3.2	5.0	DIFF	Maint Limit	Yes
12/03/2017 05:47	0.0	0.4	0.4	88.7	90.0	1.3	5.0	DIFF	Passed	Yes
12/04/2017 05:47	0.0	0.7	0.7	88.7	82.5	6.2	5.0	DIFF	Failed	Yes
12/04/2017 08:27	0.0	0.8	0.8	88.7	89.7	1.0	5.0	DIFF	Passed	Yes
12/05/2017 05:47	0.0	0.6	0.6	88.7	85.0	3.7	5.0	DIFF	Maint Limit	Yes
12/06/2017 05:47	0.0	0.5	0.5	88.7	88.6	0.1	5.0	DIFF	Passed	Yes
12/07/2017 05:47	0.0	0.1	0.1	88.7	87.6	1.1	5.0	DIFF	Passed	Yes
12/08/2017 05:47	0.0	0.2	0.2	88.7	86.2	2.5	5.0	DIFF	Maint Limit	Yes
12/09/2017 05:47	0.0	0.4	0.4	88.7	85.0	3.7	5.0	DIFF	Maint Limit	Yes
12/10/2017 05:47	0.0	0.3	0.3	88.7	80.0	8.7	5.0	DIFF	Failed	Yes
12/10/2017 10:39	0.0	0.1	0.1	88.7	89.1	0.4	5.0	DIFF	Passed	Yes
12/11/2017 05:47	0.0	-1.1	1.1	88.7	89.3	0.6	5.0	DIFF	Passed	Yes
12/12/2017 05:47	0.0	0.1	0.1	88.7	87.7	1.0	5.0	DIFF	Passed	Yes
12/13/2017 05:47	0.0	-0.3	0.3	88.7	90.4	1.7	5.0	DIFF	Passed	Yes
12/14/2017 05:47	0.0	-0.3	0.3	88.7	89.1	0.4	5.0	DIFF	Passed	Yes
12/15/2017 05:47	0.0	-0.3	0.3	88.7	90.6	1.9	5.0	DIFF	Passed	Yes
12/16/2017 05:47	0.0	-0.3	0.3	88.7	91.0	2.3	5.0	DIFF	Maint Limit	Yes
12/17/2017 05:47	0.0	-0.2	0.2	88.7	92.4	3.7	5.0	DIFF	Maint Limit	Yes
12/18/2017 05:47	0.0	0.0	0.0	88.7	91.0	2.3	5.0	DIFF	Maint Limit	Yes

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Calibration Detail

Plant: MONROE ENERGY, LLC.

Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59

Source: FCCSTACK

	Zero Level			Span Level			Results			
End Date / Time	Reference Value	Actual Response	Cal Error	Reference Value	Actual Response	Cal Error	Cal Limit	Error Method	Pass/Fail	On-Line
SO2										
12/19/2017 05:47	0.0	0.5	0.5	88.7	90.6	1.9	5.0	DIFF	Passed	Yes
12/20/2017 05:47	0.0	0.5	0.5	88.7	81.6	7.1	5.0	DIFF	**Failed**	Yes
12/20/2017 08:48	0.0	0.8	0.8	88.7	89.6	0.9	5.0	DIFF	Passed	Yes
12/21/2017 05:47	0.0	0.0	0.0	88.7	83.8	4.9	5.0	DIFF	Maint Limit	Yes
12/22/2017 05:47	0.0	-0.2	0.2	88.7	87.2	1.5	5.0	DIFF	Passed	Yes
12/23/2017 05:47	0.0	0.4	0.4	88.7	86.9	1.8	5.0	DIFF	Passed	Yes
12/24/2017 05:47	0.0	1.0	1.0	88.7	80.5	8.2	5.0	DIFF	**Failed**	Yes
12/24/2017 15:21	0.0	-1.1	1.1	88.7	83.8	4.9	5.0	DIFF	Maint Limit	Yes
12/25/2017 05:47	0.0	-2.1	2.1	88.7	83.3	5.4	5.0	DIFF	**Failed**	Yes
12/25/2017 08:30	0.0	-1.8	1.8	88.7	81.7	7.0	5.0	DIFF	**Failed**	Yes
12/25/2017 11:30	0.0	1.9	1.9	88.7	88.6	0.1	5.0	DIFF	Passed	Yes
12/26/2017 05:47	0.0	-0.3	0.3	88.7	89.0	0.3	5.0	DIFF	Passed	Yes
12/27/2017 05:47	0.0	-0.6	0.6	88.7	85.7	3.0	5.0	DIFF	Maint Limit	Yes
12/28/2017 05:47	0.0	-0.8	0.8	88.7	82.9	5.8	5.0	DIFF	**Failed**	Yes
12/28/2017 08:36	0.0	1.4	1.4	88.7	90.2	1.5	5.0	DIFF	Passed	Yes
12/29/2017 05:47	0.0	-0.2	0.2	88.7	80.9	7.8	5.0	DIFF	**Failed**	Yes
12/29/2017 08:15	0.0	-0.2	0.2	88.7	90.9	2.2	5.0	DIFF	Maint Limit	Yes
12/30/2017 05:48	0.0	-0.2	0.2	88.7	89.7	1.0	5.0	DIFF	Passed	Yes
12/31/2017 05:48	0.0	-0.1	0.1	88.7	84.6	4.1	5.0	DIFF	Maint Limit	Yes

No Quarterly Type Calibration Records Found

Calibration Error: **Failed Test** Failed Level Maintenance Limit

Attachment 8: Detailed CEMS Downtime

This is required by units with a deviation from a standard, which uses a CEMS for compliance. The SRU and the FCCU had limit exceedances in the second half of 2017. Therefore, the detailed CEMS downtime report is included in this attachment.

Downtime Events - Duration

Plant: MONROE ENERGY, LLC.
Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59
Time Online Criteria: 1 minute(s)

Source: FCCSTACK
Parameter: CO_LOW
Interval: 001H

Incident ID	Start Date/Time	End Date/Time	Duration (hours)	Reason Code - Description Action Code - Description
1	10/01/2017 08:00	10/01/2017 08:59	1.00	08 - NORMAL OPERATION 00 - None
		Number of Events:	1	
		Total Duration:	1.00 hours	

* Indicates duration incident could have additional data prior to the start date or following the end date.

Downtime Events - Duration

Plant: MONROE ENERGY, LLC.
Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59
Time Online Criteria: 1 minute(s)

Source: SRUSTACK
Parameter: SO2
Interval: 001H

Incident ID	Start Date/Time	End Date/Time	Duration (hours)	Reason Code - Description Action Code - Description
1	07/24/2017 05:00	07/24/2017 07:59	3.00	00 - None 00 - None
2	07/25/2017 06:00	07/25/2017 07:59	2.00	00 - None 00 - None
3	07/27/2017 07:00	07/27/2017 07:59	1.00	00 - None 00 - None
4	09/05/2017 05:00	09/05/2017 08:59	4.00	00 - None 00 - None
5	09/05/2017 14:00	09/05/2017 20:59	7.00	00 - None 00 - None
6	09/06/2017 07:00	09/06/2017 10:59	4.00	00 - None 00 - None
7	09/07/2017 08:00	09/07/2017 08:59	1.00	00 - None 00 - None
8	09/18/2017 09:00	09/18/2017 09:59	1.00	00 - None 00 - None
9	09/19/2017 08:00	09/19/2017 08:59	1.00	00 - None 00 - None
10	10/04/2017 07:00	10/04/2017 09:59	3.00	00 - None 00 - None
11	10/04/2017 12:00	10/04/2017 12:59	1.00	00 - None 00 - None
12	10/05/2017 05:00	10/05/2017 05:59	1.00	00 - None 00 - None
13	10/05/2017 06:00	10/05/2017 06:59	1.00	08 - NORMAL OPERATION 11 - EXCESS DRIFT PRIMARY ANALYZER
14	10/09/2017 07:00	10/09/2017 07:59	1.00	00 - None 00 - None
15	10/13/2017 05:00	10/13/2017 05:59	1.00	00 - None 00 - None
16	10/13/2017 06:00	10/13/2017 06:59	1.00	08 - NORMAL OPERATION 11 - EXCESS DRIFT PRIMARY ANALYZER
17	10/17/2017 05:00	10/17/2017 05:59	1.00	00 - None 00 - None
18	10/17/2017 06:00	10/17/2017 08:59	3.00	08 - NORMAL OPERATION 11 - EXCESS DRIFT PRIMARY ANALYZER
19	11/15/2017 07:00	11/15/2017 09:59	3.00	08 - NORMAL OPERATION 11 - EXCESS DRIFT PRIMARY ANALYZER
20	11/25/2017 11:00	11/25/2017 11:59	1.00	00 - None 00 - None

* Indicates duration incident could have additional data prior to the start date or following the end date.

Downtime Events - Duration

Plant: MONROE ENERGY, LLC.
Report Period: 07/01/2017 00:00 Through 12/31/2017 23:59
Time Online Criteria: 1 minute(s)

Source: SRUSTACK
Parameter: SO2
Interval: 001H

Incident ID	Start Date/Time	End Date/Time	Duration (hours)	Reason Code - Description Action Code - Description
21	11/27/2017 09:00	11/27/2017 12:59	4.00	08 - NORMAL OPERATION
				15 - PREVENTIVE MAINTENANCE
22	11/28/2017 05:00	11/28/2017 05:59	1.00	00 - None
				00 - None
23	11/28/2017 06:00	11/28/2017 08:59	3.00	08 - NORMAL OPERATION
				11 - EXCESS DRIFT PRIMARY ANALYZER
24	11/29/2017 08:00	11/29/2017 08:59	1.00	00 - None
				00 - None
25	11/29/2017 09:00	11/29/2017 09:59	1.00	08 - NORMAL OPERATION
				15 - PREVENTIVE MAINTENANCE
26	12/05/2017 09:00	12/05/2017 09:59	1.00	00 - None
				00 - None
27	12/11/2017 09:00	12/11/2017 09:59	1.00	08 - NORMAL OPERATION
				14 - RECALIBRATION
28	12/14/2017 21:00	12/14/2017 21:59	1.00	00 - None
				00 - None
29	12/14/2017 22:00	12/15/2017 04:59	7.00	08 - NORMAL OPERATION
				18 - DATA HANDLING SYSTEM MALFUNCTION
30	12/15/2017 05:00	12/15/2017 05:59	1.00	00 - None
				00 - None
31	12/15/2017 06:00	12/15/2017 09:59	4.00	08 - NORMAL OPERATION
				11 - EXCESS DRIFT PRIMARY ANALYZER
32	12/15/2017 10:00	12/15/2017 10:59	1.00	00 - None
				00 - None
33	12/16/2017 05:00	12/16/2017 05:59	1.00	00 - None
				00 - None
34	12/16/2017 06:00	12/16/2017 07:59	2.00	08 - NORMAL OPERATION
				11 - EXCESS DRIFT PRIMARY ANALYZER
35	12/16/2017 08:00	12/16/2017 08:59	1.00	00 - None
				00 - None
36	12/29/2017 05:00	12/29/2017 05:59	1.00	00 - None
				00 - None
37	12/29/2017 06:00	12/29/2017 11:59	6.00	08 - NORMAL OPERATION
				11 - EXCESS DRIFT PRIMARY ANALYZER
		Number of Events:	37	
		Total Duration:	78.00 hours	

* Indicates duration incident could have additional data prior to the start date or following the end date.